

ABSTRACT

5 A copolymer thermoplastic natural foot orthosis for supporting and  
controlling the movement of a lower extremity and method for manufacturing  
the same. The orthosis is fabricated by forming a positive mold of the lower  
extremity, and modifying the positive mold in predetermined locations to  
10 accomplish the type of lower extremity control desired. A strip of heated  
thermoformable copolymer material is strategically positioned around  
predetermined locations on the positive mold for providing increased support  
for the natural foot orthosis at these predetermined locations. A sheet of  
15 heated thermoformable copolymer material is then drape mold around the  
positive mold and copolymer strip, wherein the copolymer sheet is vacuum  
sealed to conform to the shape of the positive mold. During the vacuum  
formation process, the copolymer sheet and copolymer strip combine together  
so that the copolymer sheet and copolymer strip are integrally formed into a  
20 single supporting structure. After the thermoformed copolymer sheet and strip  
have cooled, strategically positioned trimlines are made in the thermoformed  
copolymer sheet depending upon the lower extremity control desired, wherein  
all excess material outside of the trimlines is removed. Utilizing modifications  
to the positive mold and strategically positioned trimlines in conjunction with  
the reinforcing copolymer strip, a natural foot orthosis is achieved that is  
lighter, cosmetically superior, dynamic and durable.

06753929-120396